Scientific Name: *Campostoma ornatum pricei*
Common Name: Mexican stoneroller
BISON No.: 010481

Legal Status:

- Arizona, Species of Special Concern
- ESA, Endangered
- ESA, Proposed Endangered
- ESA, Proposed Threatened
- ESA, Threatened
- New Mexico-WCA, Endangered
- New Mexico-WCA, Threatened
- USFS-Region 3, Sensitive
- None

Distribution:

- Endemic to Arizona
- Endemic to Arizona and New Mexico
- Endemic to New Mexico
- Not Restricted to Arizona or New Mexico
- Northern Limit of Range
- Southern Limit of Range
- Western Limit of Range
- Eastern Limit of Range
- Very Local

Major River Drainages:

- Dry Cimmaron River
- Canadian River
- Southern High Plains
- Pecos River
- Estancia Basin
- Tularosa Basin
- Salt Basin
- Rio Grande
- Rio Mimbres
- Zuni River
- Gila River
- Rio Yaqui Basin
- Wilcox Playa
- Rio Magdalena Basin
- Rio Sonoita Basin
- Little Colorado River
- Mainstream Colorado River
- Virgin River Basin
- Hualapai Lake
- Bill Williams Basin

Status/Trends/Threats (narrative):

Forest Service: Sensitive, State AZ: Endangered.
Micnckley (1973) reported the Mexican stoneroller extinct in Arizona on the basis of collections from Rucker Canyon made in 1971. Miller (1972) regarded the Mexican stoneroller as a threatened species in Texas and Arizona, presumably because of the restricted habitat (by reason of streams drying up) in these regions.
The garter snake, per mile of stream, may be the most important predator of Mexican stoneroller. Mortalities during the summer are high, but are exceptionally high during prolonged drought (John 1964). Flash floods are an important cause of mortality among fish of the year when initial flash floods induces major reproduction and is then followed by another flash flood (John 1964). Smaller individuals have been found in rainbow trout stomachs (McNatt 1974).

Distribution (narrative)**:**

The Mexican stoneroller was described from Rucker Canyon, and was found only there in Arizona, on the western side of the Chiricahua Mountains (Minckley 1973). Other populations, which differ morphologically, occur in tributaries of the Rio Grande, Texas, and in many streams of Northern Mexico (Minckley 1973, Lee et al 1981). The Mexican stoneroller is widespread in Mexico, occurring on both slopes of the Sierra Madre Occidental, with its center of distribution in the states of Chihuahua, Sonora, and Durango (Burr 1976).

Key Distribution/Abundance/Management Areas:

Panel key distribution/abundance/management areas:

Breeding (narrative)**:**

Hubbs and Wauer (1973) reported that the breeding season is in winter and spring, however, Burr (1976) observed cleared gravel areas, suggesting spawning activities, were in late May. The eastern Mexican stoneroller moves into smaller creeks to spawn in the early spring, seeking swift-flowing shallows over the fine gravels, usually just upstream from riffles and most often near a pool or some other type of cover (Minckley 1973). The term "stoneroller" comes from the movement of gravel by a male during excavation, and the eggs are deposited on the underside of stones in shallow water and vigorously defended by the male (Minckley 1991). The ova are reportedly non-adhesive, and simply lodge in crevices of the gravel to develop in a manner similar to that occurring in trout (Breder & Rosen, 1966).

Habitat (narrative)**:**

Mexican stonerollers have typically been collected in riffles, chutes, and pools in creeks and rivers from warm, clear or turbid water and with bottom materials consisting largely of sand, pebbles, gravel, rock, and bedrock (Burr 1976, Lee et. al. 1981). The Mexican stoneroller is more commonly found in shallow water 10 cm to 1 m deep near headwaters where vegetation may be abundant to absent (Burr 1976). Large adults may attain in lengths of 15 cm or more, live pools except in breeding season; young frequent riffles and runs (Minckley 1991).

Key Habitat Components: Small creeks, riffles, undercover banks, pools

Breeding Season:

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Panel breeding season comments:

Aquatic Habitats:

Large Scale:

- Rivers
- Streams
- Springs
- Spring runs
- Lakes
- Ponds
- Sinkholes
- Cienegas
- Unknown
- Variable

Small Scale:

- Runs
- Riffles
- Pools
- Open Water
- Shorelines

Panel comments on aquatic habitats:

Important Habitat Features (Water characteristics):

Current

- Fast (> 75 cm/sec)
- Intermediate (10-75 cm/sec)
- Slow (< 10 cm/sec)
- None
- Unknown
- Variable

Gradient

- High gradient (>1%)
- Intermediate Gradient (0.25-1%)
- Low Gradient (<0.25%)
- None
- Unknown
- Variable

Water Depth

- Very Deep (> 1 m)
- Deep (0.25-1 m)
- Intermediate (0.1-0.25 m)
- Shallow (< 0.1 m)
- Unknown
- Variable

Panel comments on water characteristics:

Important Habitat Features (Water Chemistry)

Temperature (general)

- Cold Water (4-15°C)
- Cool Water (10-21°C)
- Warm Water (15-27°C)
- Unknown
- Variable

Turbidity

- High
- Intermediate
- Low
- Unknown
- Variable

Conductivity

- Very High (> 2000 µS/cm)
- High (750-2000 µS/cm)
- Intermediate (250-750 µS/cm)
- Low (< 250 µS/cm)
- Unknown
- Variable

Panel comments on water chemistry:

Important Habitat Features (Structural elements):

Substrate

- Bedrock
- Silt/Clay
- Detritus
- Sand
- Gravel
- Cobble
- Boulders
- Unknown
- Variable

Cover

- Rocks, boulders
- Undercut banks
- Woody debris
- Aquatic vegetation
- Rootwads
- Not important
- Overhanging vegetation
- Unknown
- Variable

Panel comments on structural elements:

Diet (narrative)**:**

Examination of intestinal contents suggests that the diet of the Mexican stoneroller is very similar to that of central stoneroller, consisting mainly of diatoms, bacteria, and algae (Burr 1976).

Diet category (list):

- Planktivore
- Herbivore
- Insectivore
- Piscivore (Fish)
- Omnivore
- Detritivore

Grazing Effects (narrative):

To date there is no information specifically on the effects of livestock grazing on the Mexican Stoneroller. Because of being a nest builder and substrate spawner, increase in fine sediment is one possible impact and link to grazing impacts. In addition, mechanical stream bank alteration and loss of cover on stream banks both would be possible mechanisms of impact on stoneroller habitat. More concentrated and frequent use of riparian-stream habitats in summer during spawning also could be a very direct impact through direct trampling of reproductive products.

Panel limiting habitat component relative to grazing and comments:
Panel assessment: Is this species a priority for selecting a grazing strategy? Throughout the species' distribution in New Mexico and Arizona YES NO UNKNOWN In key management area(s) YES NO UNKNOWN

Principle Mechanisms Through Which Grazing Impacts This Species (list):

May be Revised

- Alteration of bank structures
- Alteration of substrate
- Alteration of water regimes
- Altered stream channel characteristics
- Altered aquatic vegetation composition
- Altered bank vegetation structure
- Change in food availability
- Change in water temperature
- Change in water quality
- Habitat fragmentation
- Increased turbidity
- Other biotic factors
- Parasites or pathogens
- Population genetic structure loss
- Range improvements
- Trampling, scratching
- Unknown

Panel causal mechanisms comments:

Authors

- **Draft:** Rinne, J.N and Magaña, H.M.
- **GP 2001:**
- **GP 2002:**
- **Revision:**

Bibliography:

Burr, B. M. 1976. A review of the Mexican stoneroller, *Campostoma ornatum,* Girard (Pisces: Cyprinidae). Trans. San. Diego Soc. Nat. Hist 18: 127-144.

John, K. R. 1964. The survival of fish in intermittent streams of the Chiricahua Mountains, Arizona. Ecology 41: 127-119.

Lee, D. S. 1981. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, 1981, c1980. Publication of the North Carolina Biological Survey; 1980-12, p. 264.

Minckley, W. L. 1973. Fishes of Arizona. Phoenix, AZ, Sims Printing Co.

Minckley, W.L. 1991. Native fishes of arid lands: A dwindling resource of the desert southwest. USDA Forest Service. General Technical Report RM-GTR-206. pp 18.

McNatt, R. M. 1974. Re-evaluation of the native fishes of the Rio Yaqui in the United States. Proceed. Ann. Conf. Western Assoc. Game and Fish Commissioners 44: 273-279.